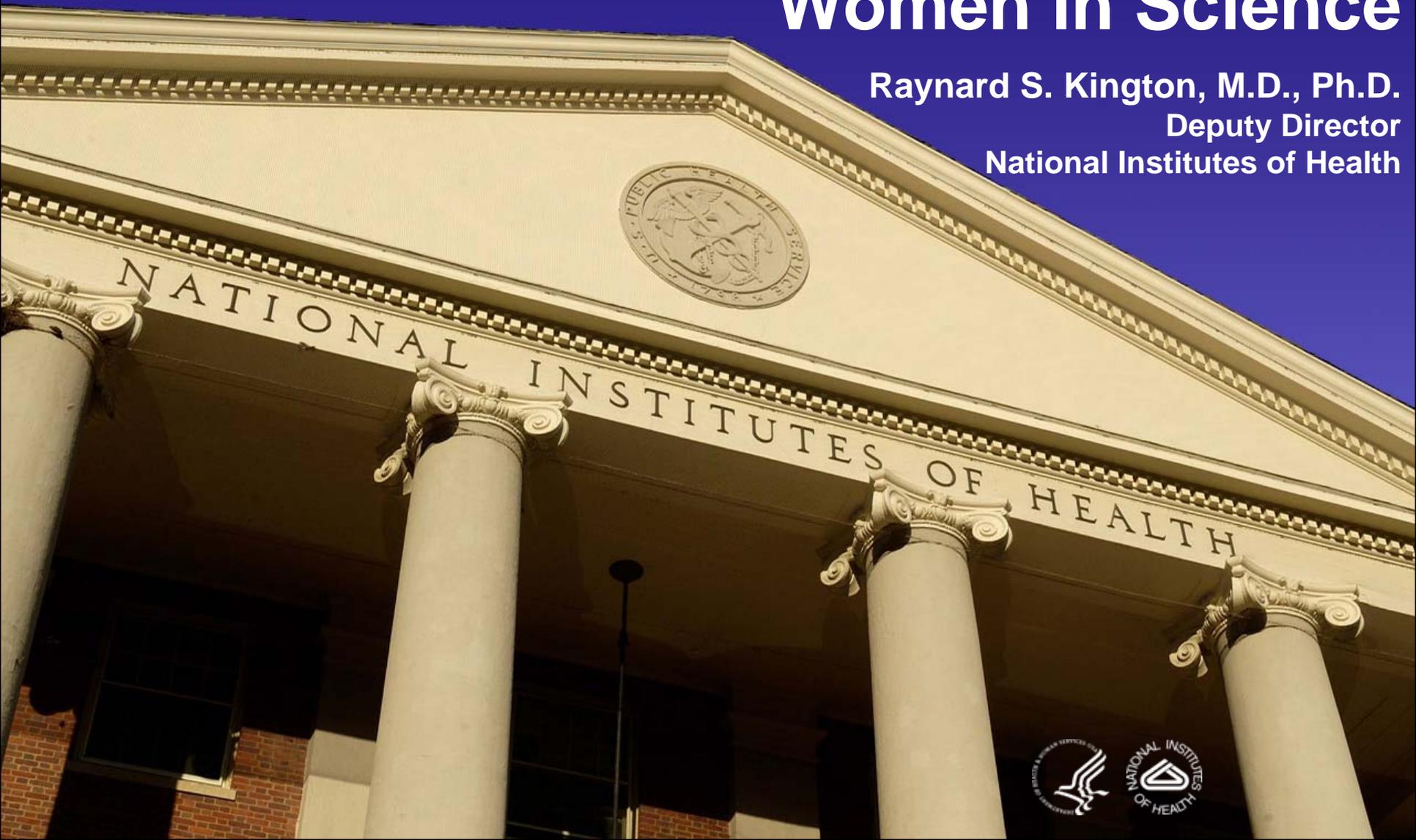


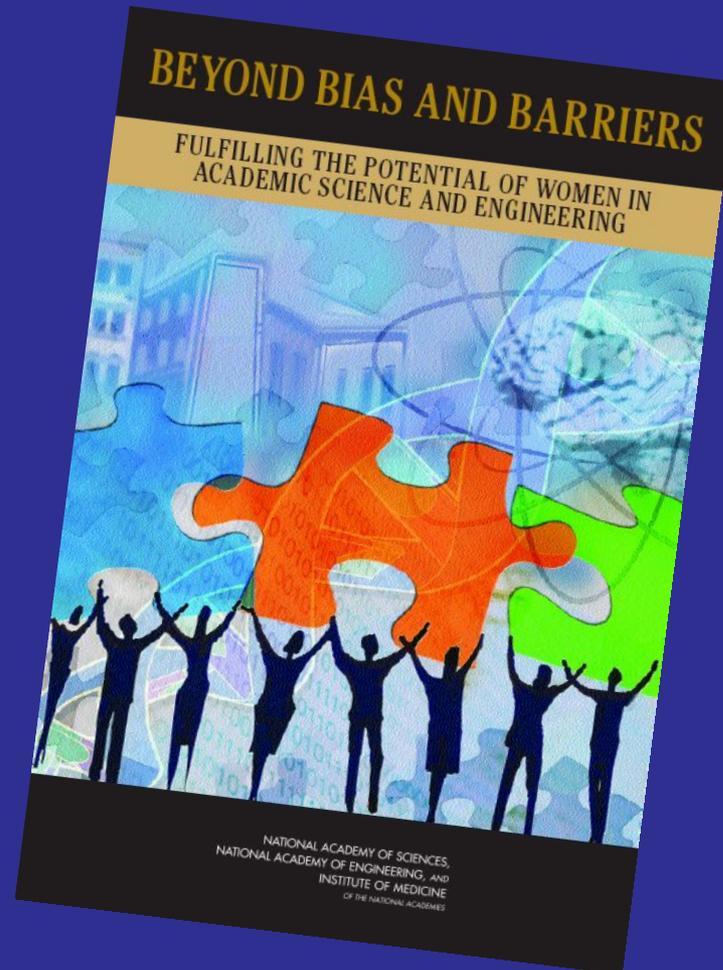
Building an Evidence Base to Address Challenges in the Careers of Women in Science

Raynard S. Kington, M.D., Ph.D.
Deputy Director
National Institutes of Health



National Academies Report

“Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering”



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- Vivian Pinn, M.D., NIH Associate Director for Research on Women's Health

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■ Staff to Working Group

- Amy Bany Adams, Ph.D., IMOD
- Jennifer Pohlhaus, Ph.D., ORWH



Subcommittee 6: Expansion of Support for Research on the Efficacy of Programs or Strategies to Reduce Gender Bias

- Members of Subcommittee
 - Raynard Kington, M.D., Ph.D., NIH Deputy Director (Chair)
 - Amy Bany Adams, Ph.D., IMOD
 - Jeremy Berg, Ph.D., NIGMS
 - Patricia Grady, Ph.D., R.N., F.A.A.N., NINR
 - Camelia Owens, Ph.D., IMOD
 - Belinda Seto, Ph.D., NIBIB
 - Janine Smith, M.D., NEI
- Goal: Build the evidence base



Aims of the Subcommittee

- Expand support for research on the efficacy of organizational programs designed to reduce gender bias and bring systemic organizational change.
- Building the evidence base:
 - What do we know about the effectiveness of interventions?
 - What can we learn from an analysis of current career choice patterns?
 - What do we know about bias in existing measures of success?
 - What do we know about differences in exposure to important factors that influence the careers of scientists?
 - What are our next steps?



What do we know about the effectiveness of interventions?



Interventional Strategies

- Goals
 - Provide mentoring and networking opportunities
 - Educate leadership on bias in hiring and promotion practices
 - Improve child care policies
 - Develop resources to transform culture and climate
- Characteristics
 - Small
 - New (less than 5 years old)
 - Narrowly tailored to institutional needs



Efficacy of Interventional Strategies

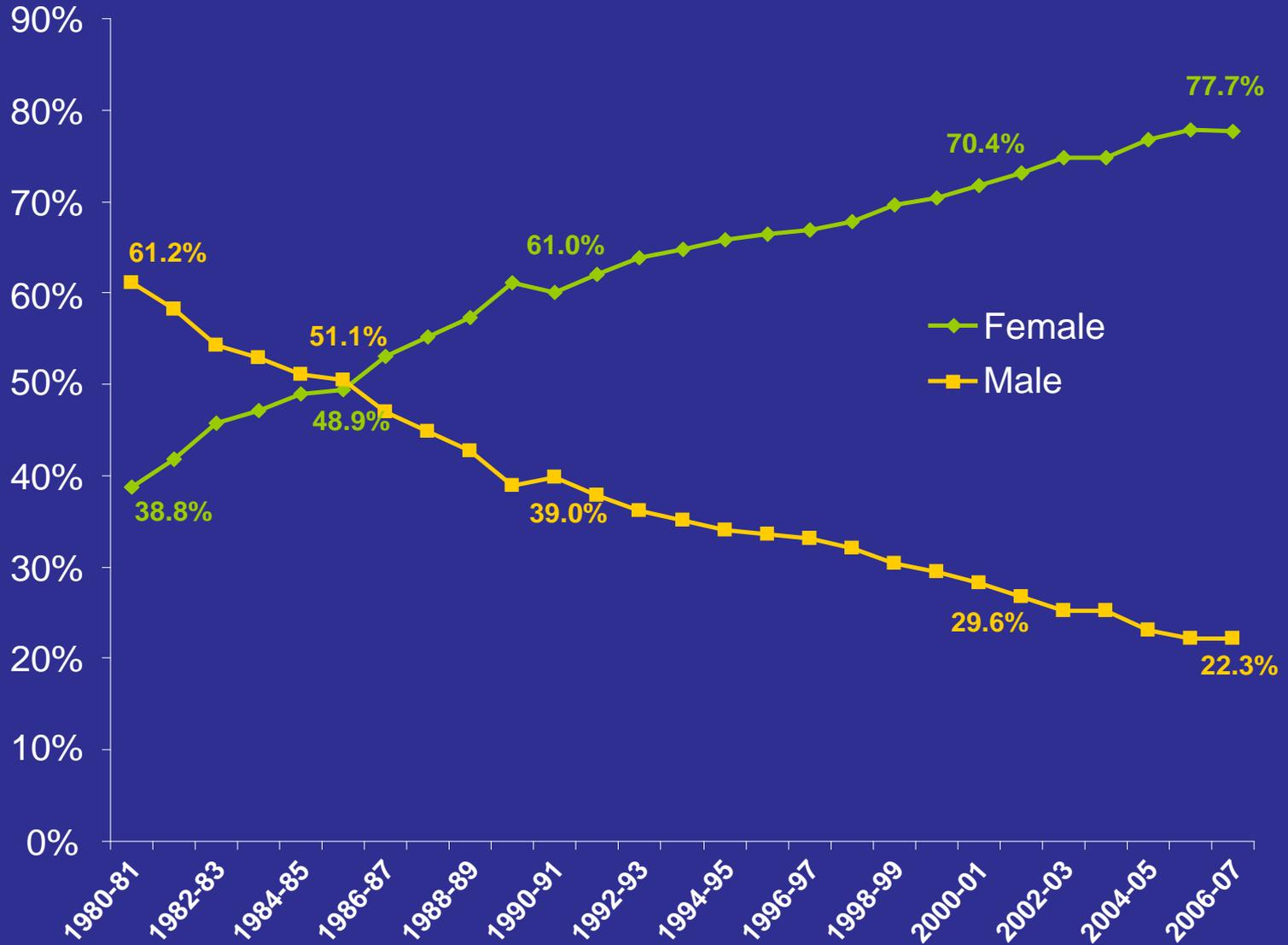
- Perception of Efficacy
 - Anecdotal Reports
 - Qualitative Surveys
 - Policy changes
- Little rigorous analysis of the efficacy of these interventions
 - What effect do the policy changes have?
 - Are hiring/promotion practices improving?
 - Are these efforts truly effective?



What can we learn from an analysis of current career choice patterns?



Veterinary Medicine Students



AAVMC Student Enrollment Data Regarding Gender – 2007 Comparative Report (<http://www.aavmc.org/DVM/>)

Raynard Kington, M.D., Ph.D.

March 4, 2008

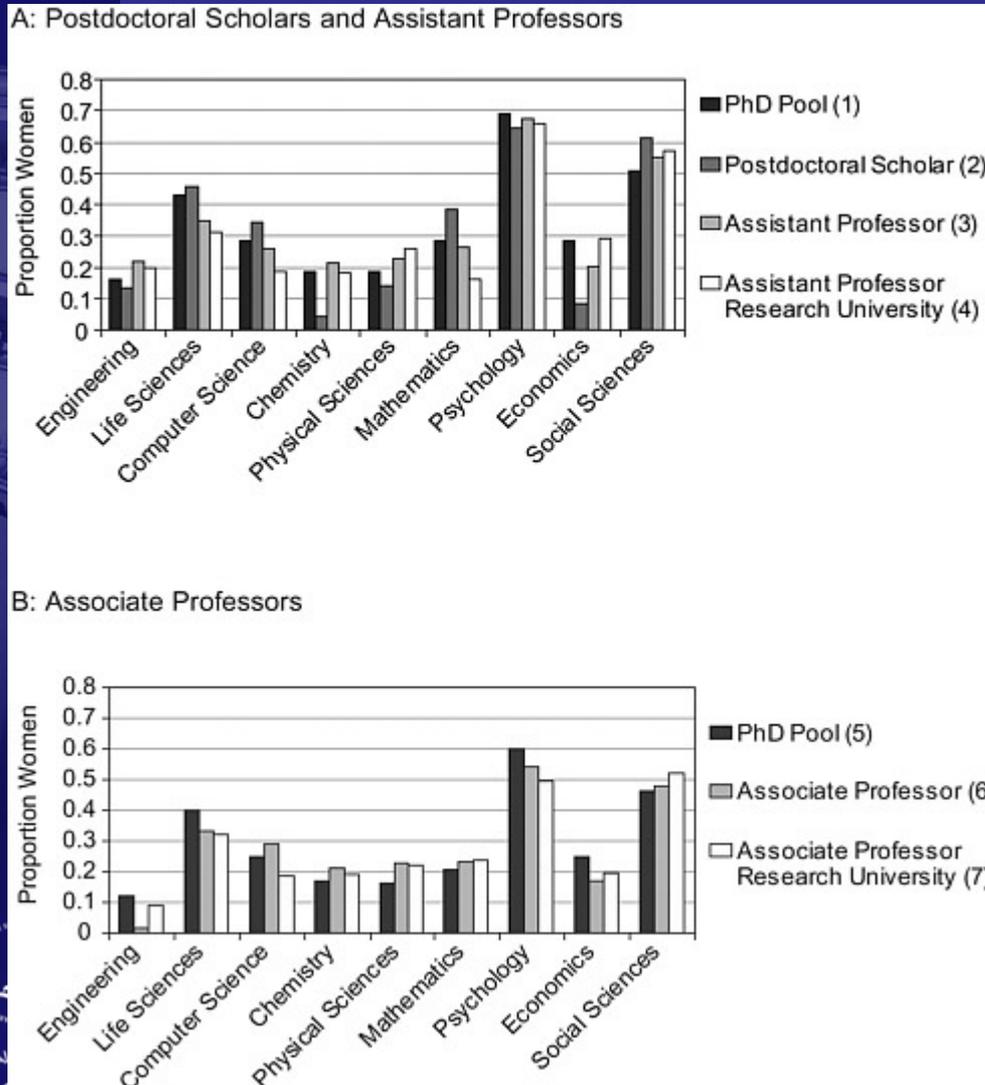


Psychiatry

- 1974: women 37% of workforce in UK
- 1999: women 67% of workforce in UK
- UC Davis: women 67% of residents
- UC Davis: women 33% of faculty
- Overall:
 - 54% psychiatry residents women
 - 32% M.D. female psychiatry faculty
 - 48% Ph.D. female psychiatry faculty



Engineering – Post-Doc to Associate Professor Level



- In contrast to psychiatry and veterinary medicine, in fields such as engineering and computer science where women are still represented in small numbers, the proportions remain fairly constant with increasing faculty rank

We need more rigorous analysis to understand the factors that might explain the variations we see across fields



What do we know about bias in existing measures of success?



Measures of Success

- Publications – women publish less than men but are cited more often than men
- Patents



Honor Societies and Awards

Society/Award	% Women Nominated	% Nominees Elected
National Academy of Sciences	12.5	15.6
National Academy of Engineering (Bioengineering)	5.3 (6.9)	6.0 (4.6)
Institute of Medicine	19.2	22.7
Lasker Prize	6.1	4.0
National Medal of Science – Overall (Biological Sciences)	N/A (N/A)	12.0 (26.1)
NIH Pioneer Award – First Year	22	0
NIH Pioneer Award – Second Year	26	46.2

Shalala, D. *Beyond Bias and Barriers*, National Academies Report, 2007.

Raynard Kington, M.D., Ph.D.

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**What do we know about
exposure to important factors
that might differentially
influence the career trajectories
of women in science?**



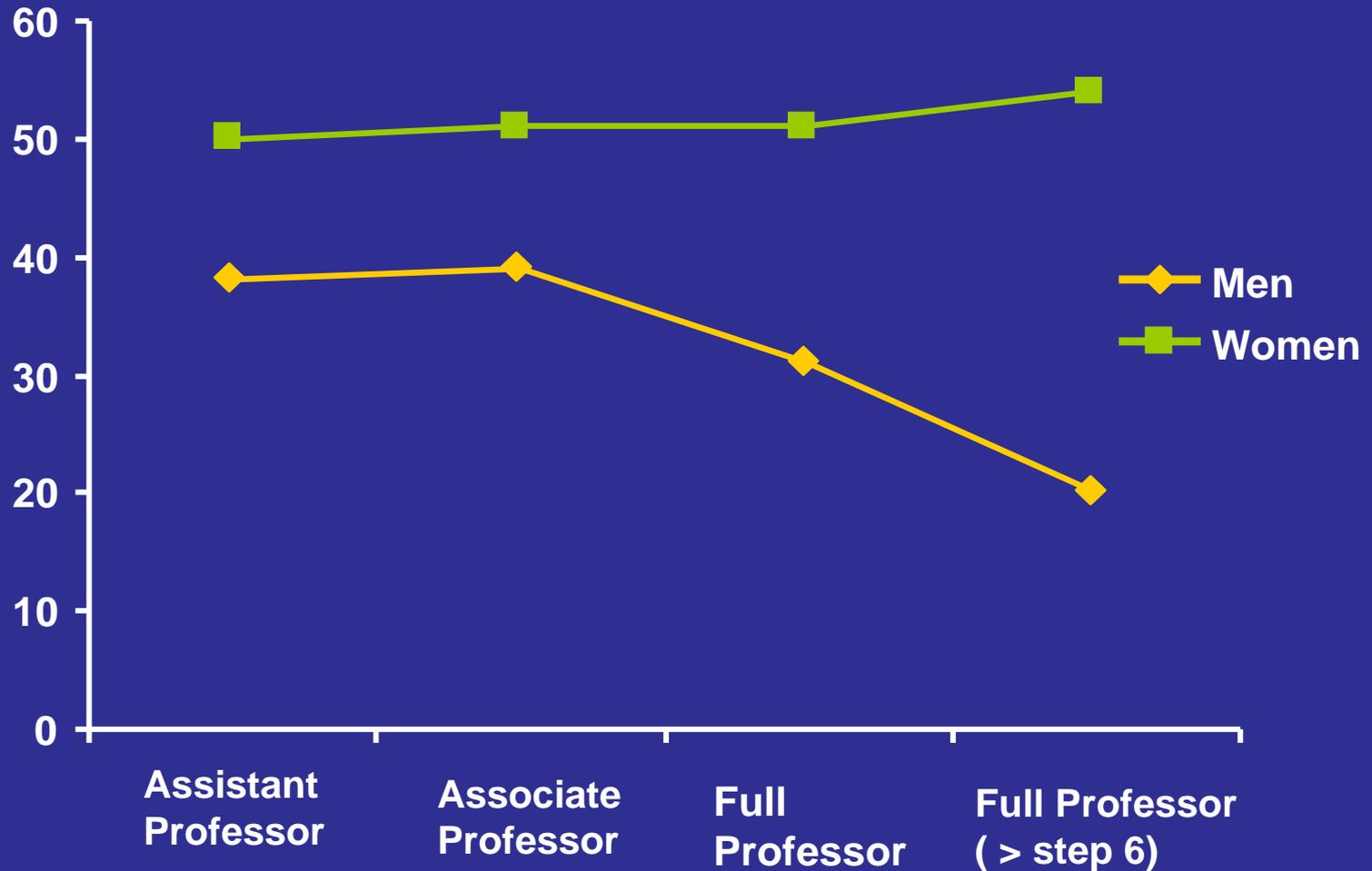
Academic Burdens: Hinder or Help?

- Committee Service
 - Do women serve on more committees than their male counterparts?
 - Is there a bias in the “type” of committee that women serve on or chair?
 - What is the evidence that this academic task may hinder or help one’s career?
- Mentoring
 - Are women over-burdened by mentoring to junior faculty?



Mentoring Valuation Analysis

Percent of faculty who value mentoring more than they perceive the department values it



Report on the UC Berkeley Faculty Climate Survey, 2003.

Raynard Kington, M.D., Ph.D.

March 4, 2008



Teaching, Mentoring, Diversity Analysis: What Faculty Value More than the Department

Rank	Item of Valuation <i>“Shared vision, teaching, mentoring, diversity”</i>	M	F	All
1	Building community in unit	41%	55%	44%
2	Mentoring undergraduates	34%	56%	40%
3	Teaching seminar course/active discussion	38%	45%	40%
4	Mentoring faculty	34%	50%	38%
5	Quality of professional work (e.g. architect)	38%	36%	37%
6	Scholarly work outside of discipline	36%	42%	37%
7	Mentoring underrepresented students	27%	51%	33%
8	Designing one or more new courses	28%	42%	32%
9	Promoting diversity	27%	48%	32%
10	Job placement of former graduate students	31%	28%	30%

Report on the UC Berkeley Faculty Climate Survey, 2003.

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Next Steps...



Expand Research Support

- NIGMS – Research on Interventions that Promote Research Careers (RFA-GM-08-005)
- RFA: Research on Causal Factors and Interventions that Promote and Support the Careers of Women
 - Are there substantive differences between men and women scientists in their day-to-day activities?
 - What are the causal factors driving the differences in existing career patterns across the various areas of science and engineering?
 - What are the mechanisms that describe career trajectories?
 - How do you measure the “cost” of burdens?
 - Can we learn from the experiences of other countries and other settings?
- ***Goal: Build the evidence base to help inform policy and the development of effective interventional strategies***



Alternative Metrics of Scientific Impact

- h-index
 - Jorge Hirsch (UCSD)
 - Individual with an index of h has published h papers with at least h citations each
 - Quality-quantity dynamic
- Modified h-index
- Look at top 3-5 publications



Hirsch, J. E., An index to quantify an individual's scientific research output. PNAS 2005; 102(46):16569-16572

Next Steps

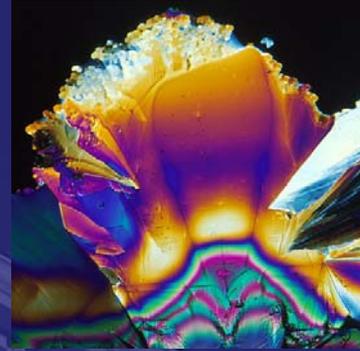
- Exploring supporting additional analysis to assess
 - Other data sources on differences in factors such as committee service
 - Alternative metrics of impact



Bottom Line

- We believe that evidence matters in the development of policy!





NIH *Transforming medicine and health through discovery*

